Castlemaine Naturalist

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Monthly newsletter of the Castlemaine Field Naturalists Club Inc.

New Holland Honeyeater Photo – Noel Young

David Millsom on Habitat Regeneration

Noel Young

I think for most of us, David Millsom updated and enlightened us on the problems of 'large scale regeneration' at the June meeting. Many of these difficulties have largely been solved by recent scientific research, both at the genetic level as well as in the practical application to field regeneration in which David is involved.

He began by stressing the importance of remnant vegetation without which there is some difficulty in promoting localised native regeneration. In northern Vic and NSW we have a situation of about 98% clearance of native vegetation, so remaining sources of seed are sparse.

Local plants have co-evolved over millions of years to cope with the soil type, salinity, fungal content, metals, parasites, and climate adaptation. But plants, if too isolated, over time run out of breeding options, so seed banks were established to overcome this. Sadly, a former network of seed banks across Victoria have been closed down or are in serious trouble owing to funding cuts and lack of support.

Some traditional notions of limited seed collection distances for local regeneration, percentages of different seeds, etc., have been shown to have no scientific basis, and in fact are dangerous ideas.

Seeds are sourced from several sites to ensure the necessary genetic diversity. Breeding with cousins for generations is not a good idea. A CSIRO dna study of Gold-dust Wattle *Acacia acinacea* showed incompatible genetic differences at one location. Different numbers of chromosomes were evident which when interbred gave infertile offspring. This confirmed the known poor viability of seed from this area.

What is a viable population? David gave an example of Yellow Box in this region. If the number of individuals drops below about 500, the species, like other eucalypts, will start hybridising with whatever eucalypt is available.

So sustainability depends on increasing the total number of plants in an area, as well as ensuring genetic diversity by importing seed from other areas.

David illustrated examples of rehabilitation projects near Lake Boga and the Terricks (north of Bendigo), in areas of saline soils which had been 98-99% cleared in the past.

In one case this was done by 'direct seeding' using only about 5% derived from the 20 or so remaining local acacias, the rest from areas further away.

Much work has been done on how to pre-treat the seed so that it will germinate readily on the next rainfall. In the case of legumes, for example, they are immersed in boiling water for a species-specific time. Other methods including leaching, scarifying the casing, partially rotting, soaking in acid, and hormone treatment are used for different species. Then there is an important stimulant – smoke.

Dr Kingsley Dixon and his laboratory team in Perth, W.A. after 12 years of research in this area, isolated an active ingredient of smoke which stimulates seed germination. Du Pont is synthesising it for broad acre agriculture. It is said to germinate 98% of the known plant species on the planet, and will have hugely important agricultural application. Nevertheless, it was found that some species need to be treated with cyanide as well as the smoke. (Cyanide is a natural ingredient of many plants, and care should be taken when handling some seeds).

For Nitrogen fixing, plants depend on associated bacteria to supply ammonia by-product to their roots. So a suitable bacteria product was developed and refined for application in seed lines. In early comparative tests, (during drought) half the seedlings not inoculated died.

David and his colleagues have been developing the field research methods and applying them to some successful rehabilitation projects. Comparative plantations on a fairly large scale have been carried out to test optimal seed germination using these methods. Machines have been developed which make the process of planting semi automatic, allowing 50 to 60 km of plant lines to be completed in a day.

Direct seeding methods were developed over 25 years in WA and SE Australia to enable large areas to be regenerated at relatively low cost. This could not be achieved using nursery stock. Among the main drivers of this development were the need to combat salinisation of grazing and cropping farmland in the northern plains, a creeping disaster caused by the raising of water tables in naturally saline formations; an unintended result of widespread irrigation practices. The result is known as “dryland salinity” which renders the land useless. Seedling transplanting does not work because they do not survive the shock. Direct seeding has been shown to be successful using saltbush and bluebush to establish vegetation, and later lowering the water table through transpiration.

David went on to discuss the techniques and preparation for direct seeding, including a variety of ingenious machines invented for specific applications, and the necessity to deal with weeds and rabbits. He then outlined a number of case histories of plantations carried out, e.g. in one instance, over 6000 seedlings were planted in a day with three tractors, a water tanker, and a crew of 12. There were examples from dryland salinity to freeway cutting rehabilitation, and in many

different soil types. One example of Large Scale Regeneration can be seen at the Ravenswood Estate, to the west of the Calder highway and south of Big Hill. Here about 800 Ha of mixed species were planted in 1993 to 95. And several hundred thousand direct seeded plants can be seen along the Calder freeway near Malmsbury.

Several hundred different species are now being 'direct seeded' across Australia, and the species list is steadily increasing as research proceeds on specific germination techniques.

Birding in the Bellarine

Rita Mills

Several Field Nats members spent a few days with Joy Weatherill at her house in Point Lonsdale, as she shared some of her special places on the Bellarine Peninsular. Geoff and Geraldine Harris had arrived before Noel Young and myself, while Kit and Helen Morris turned into the driveway an hour or so later, after Joy's yummy pizza lunch was over.

It had been raining on and off on the way down (we drove via Gisborne and Bacchus Marsh, through some quite spectacular country) and it was raining in Point Lonsdale, but we decided to don wet weather gear and head out for a walk along the beach to see what birds were around – perhaps even some Hooded Plovers? We actually walked along the constructed path above the beach until we got to the cliff area and took the walking path to the Lighthouse, but it was blowing hard, and raining harder, so we jibbed and went back to the house.

Once the rain had stopped for a while we ventured out again, driving down to the salt-marshes and Lake Victoria where Joy had seen Black-winged Stilts earlier in the week, but they'd deserted that afternoon. Nevertheless we got good views of Red-capped Dotterels sheltering from the cold wind under stunted shrubs on a spit, White-fronted Chats on another little "island" on the other side of the spit of land we walked down, numbers of Chestnut Teal and Swans, some Great Crested Grebes, - altogether 17 species – not bad for a windy, cold, damp afternoon.

Friday was fine and sunny as we drove out towards Ocean Grove, stopping first at the Begola wetland, where we had a list of 14 species including a Great Egret and Purple Swamphen. From there we headed to Drysdale and Lake Lorne, where we were greeted by the sound of Rainbow Lorikeets and Noisy Miners, but the big thrill was the sighting of Blue-billed Ducks with Joy's telescope confirming the sighting. We drove on to the old Drysdale station for a while, and it was here I lost my bird notebook. Disaster! Next stop was Swan Bay Jetty, where we found dozens of Cormorants - Pied, Little Pied, and Little Black - some sheltering in the puddles behind the shrubs, some on the jetty and others perched on boats (which were very sensibly draped in canvas). Along with them there were numerous Chestnut Teal (we saw them at almost every stop), a Royal Spoonbill, Crested Tern, Pelicans, a White-faced Heron, a Little Egret this time, and several other species.

Before lunch we made one more visit, this time to the Queenscliff boathouse on

Swan Bay, where there were uncountable thousands of Black Swans. In the afternoon we drove out again, this time to Edwards Point where we took the walking track down through the littoral vegetation before crossing the salt-marsh on a walkway, and out onto the Beach. We were all rather horrified by the way Bridal Creeper is taking over all along the sheltered areas.

We were fascinated by an old Moonah (*Melaleuca lanceolata*) which had formed into loop, with the top of the trunk disappearing along the sand into the vegetation at right angles to the trunk. There were several Moonahs that had branches sawn off to clear the path, and we tried to work out how these strangely trunked trees grow as they do. Were there really lots of stems entwined? In the end we decided that they must split and keep growing, making them appear to be many stems twisted around each other.

On Saturday it was threatening rain again, but we decided that with our wet weather gear we'd be fine, and set off to walk to the lighthouse and down onto the surf beach. We did get to the lighthouse, but it was blowing hard, and raining, and even the surfers were absent from the surf beach, which slopes at a steep angle into the sea. Needless to say, we saw all this from the cliff above, we certainly didn't venture down. However, all was not lost, because, before we reached the lighthouse Joy spotted birds heading for a patch of disturbed water, and told us that there would be a shoal of fish there, so we checked with the binoculars, and sure enough there were more gulls arriving all the time, and amongst them were three birds which we were 99% sure were Shy Albatross.

The mist and rain made birding difficult, but the views across the Heads to Point Nepean, with ships surging through the gloom at times was quite spectacular for us inlanders. But the weather got too much for us after we'd inspected the lighthouse surrounds and we retired to a nice, warm café for morning tea.

After a fish and chip (plus salad) lunch we headed out to Lake Victoria again, and to Joy's delight, the Stilts were back, sheltering on the other side of the lagoon, and not just Black-winged, but several non-breeding Banded Stilts with them, as confirmed with the telescope. There is a great advantage of having one on birding trips! At the end of the three days we had a grand total of 51 bird species, by far the most numerous being the Black Swans, but there were many Chestnut Teal, Cormorants, and Australasian Grebes, too. I wonder if there are fewer Silver Gulls these days, as they weren't anywhere as numerous as I expected.

We finally headed back to the house for a cuppa, a rest, and a game of Bananagrams before we headed for home, leaving Joy to recover, but I think she enjoyed the time of showing us around, as much as we enjoyed our stay. Thank you so much Joy, for your hospitality.

Tarilta tragedy

Noel Young

Perhaps it says something of the dilemmas of our times that this 400th edition of the Castlemaine Naturalist is bookended with a positive and a negative environmental report. At the front is David Millsom's very positive contribution to the reparation of man made degradation of land, while this article touches on further destruction of our bushland under government policy. This time it is in the name of "asset protection" that 5% of "the bush" (apparently regardless of ecological type or distance from built areas) must be burned per annum, and this category means that DSE need pay no attention to environmental assets on state owned land. The intensity of the burn in the upper Tarilta creek south of Guildford is testament to this approach. Some 600 Ha were lit on March 10 this year by dropping incendiaries from a helicopter, and the results are a shock to all environmentalists in this area who knew the place.

While most environmentalists agree in principle with asset protection burns, methods need to be carefully vetted or we are likely to see considerable degradation of our box ironbark forest. One of the most disturbing aspects of this scramble to carry out policy is the fact that no work is being carried out anywhere as far as I can make out, to scientifically record 'before and after' plots over time to document the effects. DSE is grossly understaffed for this undertaking, and is in the process of losing a large number of staff under the current government.

Much more detail about this and other burns can be followed up on the Friends of the Box Ironbark Forest website: www.fobif.org.au And concerns are not confined to this area – I recommend reading Rod Orr's article in the June edition of Whirrakee (Bendigo FNC) on the Wellsford forest burn.

Left: Tarilta gorge in June, 2011. Attempts to have this place included in the Heritage park failed. Right: Little remains of a large tree in the gorge after the burn

Scores of large, mature eucalypts along the Tarilta gorge have been completely destroyed, with some only an outline of ash on the ground. This loss of mature habitat is unnecessarily destructive. On the surrounding ridges and spurs, large areas had scorch heights to the top of the trees, and as yet very little epicormic growth, or any sign of green at all. Heavy rain shortly after the burn washed a thick sludge of ash into the creek bed, and caused soil erosion on the steep slopes. These photos were taken on June 17, 2012, more than three months after the burn.

In accordance with our committee policy of referring requests for funds to our individual members, we have received the following from

Trust for Nature – Land Management Innovation fund

Support worthwhile projects such as the study of endangered plants on the Volcanic plains, Bandicoot protection in outer Melbourne, and ecological thinning of east Gippsland forest. Details: www.trustfornature.org.au or donate over the phone on (03) 8631 5888 More details available from the Secretary or the meeting table.

Notes of plants in flower 28th June by Richard Piesse

Madigan's Lane Chewton:

Acacia acinacea, genistifolia, pycnantha
Melichrus urceolatus Wahlenbergia stricta
Pimelia humilis Pterostylis striata, nutans

Humboldt – Taradale – Drummond Lane

Acacia aculeatissima, aspera, lanigera
Daviesia ulicifolia Epacris impressa
Platylobium rotundum Grevillea alpina

Observations

- At the meeting Geraldine Harris produced a couple of mystery skulls she picked up in the Grampians. And an automatic camera trained on a nesting box full of sugar gliders recorded a Tuan
- Chris Timewell exhibited a nesting box which had suffered enlargement by Galahs. Even the base was removed!
- Denis Hurley had a lone Speckled Warbler in his Whirrakee wattle (which is very popular with many small birds)
- Others reported an influx of Eastern Spinebills and NH Honeyeaters, and a Jacky Winter dominating a Crimson Rosella at a bird bath
- Irruption of Rainbow Lorikeets and a Blue faced Honeyeater in the garden – Chris Morris
- Two flowering street eucalypts near the Restorers Barn have supported a flock of Musk Lorikeets for a month or more – Geraldine
- Late June – backyard invasions by a flock of 20 to 30 Silvereyes, as well as increased numbers of New Holland Honeyeaters – Noel Young

Disclaimer: The opinions expressed in this newsletter are those of the contributors and not necessarily those of the club

Castlemaine Field Naturalists Programme
July 2012

Fri July 13 meeting: speaker GEOFF PARK – Moolort Plains

Sat July 14 field trip: Moolort Plains

Fri August 10 meeting: speaker ERN PERKINS on local plant and bird surveys

Sat August 11 field trip: Quadrats and photo-points in the Muckleford area with Ern Perkins

VISITORS ARE WELCOME AT CLUB ACTIVITIES

General meetings - (second Friday of each month, except January) are held in the Uniting Church (UCA) Hall (enter from Lyttleton St.) at 7.30 pm.
Field Trips - (Saturday following the general meeting) leave from the car park opposite Castle Motel, Duke Street at 1.30pm sharp unless stated otherwise. BYO morning and/or afternoon tea. Outdoor excursions are likely to be cancelled in extreme weather conditions. There are NO excursions on total fire ban days.
Business meetings - fourth Thursday of each month, except December, at George Broadways; 24a Greenhill Ave., at 7.30 pm. Members are invited to attend.

Subscriptions for 2012
Ordinary membership: Single $30, Family $40
Pensioner or student: Single $25, Family $30
Subscription includes postage of the monthly newsletter, Castlemaine Naturalist

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